

ABSTRACT

A PBX system using an unmodified personal computer as the host server and using expansion slots to couple one or more switch cards to the system bus, and, optionally including a network interface card to couple the PBX system to other client computers running telephony enabled applications to control the PBX via a local area network. The switch card(s) are each coupled to a chain of one or more port expansion units that do not consume expansion slots. Each PEU contains a DSP and a microcontroller, an FPGA and port interface circuitry to interface to POTS CO lines, extension telephone lines, T1 lines or PRI lines. The personal computer is programmed with a PBX process that controls operations of the overall system and may also be programmed with conventional voice mail applications or integrated voice response and other applications to implement various telephony functions such as recording voice mail or prompt callers to input DTMF tones indicating what they want to do. Each chain of PEUs is coupled to the switch card and the PBX process by a TDMA bus and a packet switched bus. Distributed processing by the DSPs and microcontrollers in the PEUs to do tone generation, tone recognition, and a host of other functions offloads much of the work from the host. The packet switched bus enables easy handling of packetized data in IP packets or other packetized data.

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